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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,220	02/03/2006	Bernard Jacob Andries Stommen	NL030986	9547

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EXAMINER	
BARNES-BULLOCK, CRYSTAL JOY	
ART UNIT	PAPER NUMBER
2121	
MAIL DATE	DELIVERY MODE
12/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,220	STOMMEN ET AL.	
	Examiner	Art Unit	
	Crystal J. Barnes Bullock	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,7,10,15,16,19,21 and 22* is/are rejected.

7)☒ Claim(s) *2-5,8,9,11-14,17,18,20 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a Final Office Action in response to the Amendment received on 15 September 2008. Claims 1-23 remain pending in this application.

Response to Arguments

2. Applicant's arguments, see Remarks, filed 15 September 2008, with respect to the Specification Objection has been fully considered but they are not persuasive. Section headings ARE REQUIRED in accordance with MPEP 608.01(a) and **37 CFR 1.77(b)**. Appropriate action is required.

3. Applicant's arguments, see Remarks, filed 15 September 2008, with respect to the Claim Rejection has been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, the Kawaguchi reference discloses the or each gravity compensation controller (16; 25) (see column 6 lines 18-24 and 35-46, "first controller 502, second controller 504") uses the output signals ("radial displacement, radial angle") generated by the or each position controller (13) (see column 6 lines 11-18 and 28-35, "first processor 501, second processor 503") as

input signals ("radial displacement, radial angle"), thereby generating output signals ("radial displacement, radial angle") used by the or each gravity compensation actuator (17) (see column 6 lines 24-27 and 43-46, "actuators 32, 34") to compensate gravitational forces ("radial displacement, radial angle") acting on said position-controlled device (11) ("movable member 40").

In response to applicant's argument that the references fail to show certain features of applicant's invention, the Kawaguchi reference discloses at least one gravity compensation controller (see column 6 lines 18-24 and 35-46, "first controller 502, second controller 504") uses output signals ("radial displacement, radial angle") generated by the or each position controller (see column 6 lines 11-18 and 28-35, "first processor 501, second processor 503") as input signals ("radial displacement, radial angle") thereby generating output signals ("radial displacement, radial angle") used by at least one gravity compensation actuator (see column 6 lines 24-27 and 43-46, "actuators 32, 34") to compensate gravitational forces ("radial displacement, radial angle") acting on said position-controlled device ("movable member 40").

Claim Objections

4. Claim 13 is objected to because of the following informalities: dependent claim number has been deleted from previous claim amendment. Appropriate correction is required.

Specification

5. The disclosure remains objected to because of the following informalities:

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 6, 7, 10, 15, 16, 19, 21 and 22 remain rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,671,058 to Kawaguchi.

As per claim 1, the Kawaguchi reference discloses positioning apparatus comprising: at least one position sensor (12) (see column 6 lines 7-9, "radial position detectors 31, 33"), at least one position controller (13) (see column 6 lines 11-18 and 28-35, "first processor 501, second processor 503") and at least one position

actuator (14) (see column 7 lines 41-43, 45-47, "axial position actuator 36, rotational actuator 38"), wherein the or each position sensor (12) ("radial position detectors 31, 33") measures the position of a position-controlled device (11) (see column 5 lines 23-34, "movable member 40"), wherein the or each position controller (13) ("first processor 501, second processor 503") uses measurement signals provided by the or each position sensor (12) ("radial position detectors 31, 33) as input signals, and wherein output signals generated by the or each position controller (13) ("first processor 501, second processor 503") are used by the or each position actuator (14) ("axial position actuator 36, rotational actuator 38") to control the position of said position-controlled device (11) ("movable member 40"), the positioning apparatus further comprising a gravity compensation device (see column 6 lines 7-9, "control system") compensating gravitational forces ("radial displacement, radial angle") acting on said position-controlled device (11) ("movable member 40"), characterized in that the gravity compensation device ("control system") includes at least one gravity compensation controller (16; 25, 28) (see column 6 lines 20-24 and 35-46, "first controller 502, second controller 504") and at least one gravity compensation actuator (17) (see column 6 lines 24-27 and 43-46, "actuators 32, 34"), wherein the or each gravity compensation controller (16;

25) ("first controller 502, second controller 504") uses the output signals ("radial displacement, radial angle") generated by the or each position controller (13) ("first processor 501, second processor 503") as input signals ("radial displacement, radial angle"), thereby generating output signals ("radial displacement, radial angle") used by the or each gravity compensation actuator (17) ("actuators 32, 34") to compensate gravitational forces ("radial displacement, radial angle") acting on said position-controlled device (11) ("movable member 40").

As per claim 6, the Kawaguchi reference discloses the gravity compensation device ("control system") includes one gravity compensation controller (16) ("first controller 502, second controller 504"), wherein the output signals ("radial displacement, radial angle") of said one gravity compensation controller ("first controller 502, second controller 503") are used to control the gravity compensation actuator (17) (see column 6 lines 41-50, "actuators 32, 34").

As per claim 7, the Kawaguchi reference discloses the gravity compensation device (see column 8 lines 48-49, "control system") includes two gravity compensation controllers (see column 8 lines 63-65, "first controller 602, second controller 603"), wherein a first gravity compensation controller (25) ("first controller 602, second controller 603") uses the output signals ("radial

displacement, radial angle") generated by the position controller (13) ("processor 601") as input signals ("radial displacement, radial angle"), wherein a second gravity compensation controller (28) (see column 9 lines 1-3, "first compensatory controller 701, second compensatory controller 702") uses the output signals ("outputs") generated by the first gravity compensation controller (25) ("first controller 602, second controller 603") as input signals ("inputs"), and wherein output signals ("outputs") from said second gravity compensation controller (28) ("first compensatory controller 701, second compensatory controller 702") are used to control the gravity compensation actuator (17) (see column 9 lines 23-25, "actuators 32, 34").

As per claim 10, the Kawaguchi reference discloses gravity compensation device for compensating gravitational forces acting on a position-controlled device (11) (see column 5 lines 23-34, "movable member 40"), wherein the position of said position-controlled device (11) ("movable member 40") is measured by at least one position sensor (12) (see column 6 lines 7-9, "radial position detectors 31, 33") and controlled by at least one position controller (13) (see column 6 lines 11-18 and 28-35, "first processor 501, second processor 503"), characterized by at least one gravity compensation controller (16; 25, 28) (see column 6 lines 20-24 and 35-46,

"first controller 502, second controller 504") and at least one gravity compensation actuator (17) (see column 8 lines 21-31, "actuators 32, 34"), wherein the or each gravity compensation controller (16; 25) ("first controller 502, second controller 504") uses the output signals ("radial displacement, radial angle") generated by the or each position controller (13) ("first processor 501, second processor 503") as input signals ("radial displacement, radial angle"), thereby generating output signals ("compensating signals") used by the or each gravity compensation actuator (17) ("actuators 32, 34") to compensate gravitational forces ("radial displacement, radial angle") acting on said position-controlled device (11) ("movable member 40").

As per claim 15, the Kawaguchi reference discloses one gravity compensation controller (16) ("first controller 502, second controller 504"), whereby the output signals ("radial displacement, radial angle") from said one gravity compensation controller (25) ("first controller 502, second controller 504") are used to control the gravity compensation actuator (17) (see column 6 lines 41-50, "actuators 32, 34").

As per claim 16, the Kawaguchi reference discloses two gravity compensation controllers (see column 8 lines 63-65, "first controller 602, second controller

603"), wherein a first gravity compensation controller (25) ("first controller 602, second controller 603") uses the output signals ("radial displacement, radial angle") generated by the position controller (13) ("processor 601") as input signals ("radial displacement, radial angle"), wherein a second gravity compensation controller (28) (see column 9 lines 1-3, "first compensatory controller 701, second compensatory controller 702") uses the output signals ("outputs") generated by the first gravity compensation controller ("first controller 602, second controller 603") as input signals ("inputs"), and wherein output signals ("compensating signal") from said second gravity compensation controller (28) ("first compensatory controller 701, second compensatory controller 702") are used to control the gravity compensation actuator (17) (see column 6 lines 41-50, "actuators 32, 34").

As per claim 19, the Kawaguchi reference discloses method for compensating gravitational forces acting on a position-controlled device (see column 5 lines 23-34, "movable member 40"), whereby the position of said position-controlled device ("movable member 40") is measured by at least one position sensor (see column 6 lines 7-9, "radial position detectors 31, 33") and controlled by at least one position controller (see column 6 lines 11-18 and 28-35, "first processor 501, second processor 503"), characterized in that at least one gravity compensation controller

(see column 6 lines 20-24 and 35-46, "first controller 502, second controller 504") uses output signals ("radial displacement, radial angle") generated by the or each position controller ("first processor 501, second processor 503") as input signals ("radial displacement, radial angle") thereby generating output signals ("compensating signals") used by at least one gravity compensation actuator ("actuators 32, 34") to compensate gravitational forces ("radial displacement, radial angle") acting on said position-controlled device ("movable member 40").

As per claim 21, the Kawaguchi reference discloses one gravity compensation controller ("first controller 502, second controller 504") is used, whereby the output signals ("radial displacement, radial angle") of said one gravity compensation controller ("first controller 502, second controller 504") are directly used to control the gravity compensation actuator (see column 6 lines 41-50, "actuators 32, 34").

As per claim 22, the Kawaguchi reference discloses two gravity compensation controllers (see column 8 lines 63-65, "first controller 602, second controller 603") are used, wherein a first gravity compensation controller ("first controller 602, second controller 603") uses the output signals ("radial displacement, radial angle") generated by the position controller ("processor 601")

as input signals ("radial displacement, radial angle"), wherein a second gravity compensation controller (see column 9 lines 1-3, "first compensatory controller 701, second compensatory controller 702") uses the output signals ("outputs") generated by the first gravity compensation controller ("first controller 602, second controller 603") as input signals ("inputs"), and wherein output signals ("compensating signals") of said second gravity compensation controller ("first compensatory controller 701, second compensatory controller 702") are used to control the gravity compensation actuator (see column 6 lines 41-50, "actuators 32, 34").

Allowable Subject Matter

8. Claims 2-5, 8, 9, 11-14, 17, 18, 20 and 23 remain objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

As per claims 2 and 11, the prior art of record taken alone or in combination fails to teach the gravity compensation actuator (17) comprises a spring (18), a string (19), a pulley (20) and a motor (21).

As per claims 8 and 17, the prior art of record taken alone or in combination fails to teach the output signals generated by the first gravity compensation controller (25) are summed with a position setpoint signal of said position controller (13), wherein the resulting signal is used as setpoint for said second gravity compensation controller (28).

As per claims 9 and 18, the prior art of record taken alone or in combination fails to teach the second gravity compensation controller (28) uses the measurement signal of a motor position sensor (29) as input signal, whereby said motor position sensor measures the position of the motor (21) of said gravity compensation actuator (17).

As per claim 20, the prior art of record taken alone or in combination fails to teach the gravity compensation actuator comprises a spring, a string, a pulley and a motor, whereby the spring is attached with a first end to the position-controlled device and with a second end to a string, wherein the string is wound around the pulley, and wherein the pulley is driven by the motor using the output

signals generated by the gravity compensation controller in a way that the tension in the spring is kept constant and equal to the gravitational forces acting on said position-controlled device.

As per claim 23, the prior art of record taken alone or in combination fails to teach output signals generated by the first gravity compensation controller are summed with a position setpoint signal of said position controller, whereby the resulting signal is used as setpoint for said second gravity compensation controller, and the second gravity compensation controller uses the measurement signal of a motor position sensor as input signal, whereby said motor position sensor measures the position of the motor of said gravity compensation actuator.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to positioning control systems compensating gravity forces in general:

USPN 5,767,648 to Morel et al.

USPN 4,733,150 to Papiernik et al.

USPN 3,827,33 to Hurd

US Pub. No. 2008/0180053 A1 to Lee

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes Bullock whose telephone number is 571.272.3679. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571.272.3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Crystal J. Barnes Bullock/
Primary Examiner, Art Unit 2121
25 November 2008